

IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1-14. (Canceled).

15. (Currently Amended) An OFDM-CDMA transmission apparatus comprising:

a spreader that carries out spreading processing on at least one known signal at a predetermined spreading factor;

a frequency division multiplexer that breaks down the known signal after being spread at the spreading processing by said spreader into individual chips, the number of said chips matching said spreading factor, and subjects said chips to frequency division multiplexing by assigning one ~~chip data~~ known signal string chip per subcarrier, the number of subcarriers aligned in a frequency axis direction matching said spreading factor; and

a transmitter that transmits the chips, after being subjected to the frequency division multiplexing ~~at~~ by said frequency division multiplexer, simultaneously, wherein:

information from the known signal is multiplexed into every chip assigned to the subcarriers.

16. (Previously Presented) The OFDM-CDMA transmission apparatus according to claim 15, wherein the known signal that is spreading processed by said spreader has a higher signal level than other transmission signals.

17. (Currently Amended) An OFDM-CDMA reception apparatus comprising:

a receiver that receives a multiplexed signal, in which at least one known signal is subjected to spreading processing at a predetermined spreading factor and broken down into individual chips, the number of said chips matching said spreading factor, and in which said chips are subjected to frequency division multiplexing by assigning one ~~chip-data~~ known signal ~~string~~ chip per subcarrier, the number of subcarriers aligned in a frequency axis direction matching said spreading factor;

a demodulator that carries out despreading processing on the multiplexed signal received by said receiver using a spreading code assigned to the known signal, to thereby extract a received version of the known signal, comprising the chips subjected to spreading processing and transmitted simultaneously;

a phase error detector that detects a residual phase error using the known signal and the received version of the known signal; and

a phase compensator that carries out phase compensation on a received version of each transmission signal using the residual phase error.

18. (Currently Amended) A communication terminal apparatus equipped with an OFDM-CDMA transmission apparatus and an OFDM-CDMA reception apparatus, said OFDM-CDMA transmission apparatus comprising:

a spreader that carries out spreading processing on at least one known signal at a predetermined spreading factor;

a frequency division multiplexer that breaks down the known signal after being spread at the spreading processing by said spreader into individual chips, the number of said chips matching said spreading factor, and subjects said chips to frequency division multiplexing by assigning one ~~chip data~~ known signal string chip per subcarrier, the number of subcarriers aligned in a frequency axis direction matching said spreading factor; and

a transmitter that transmits the individual chips, after being subjected to the frequency division multiplexing at by said frequency division multiplexer, simultaneously, wherein:

information from the known signal is multiplexed into every chip assigned to the subcarriers,

said OFDM-CDMA reception apparatus comprising:

a receiver that receives a multiplexed signal, in which at least one known signal is subjected to spreading processing at a predetermined spreading factor and broken down into individual chips, the number of said chips matching said spreading factor, and in which said chips are subjected to frequency division multiplexing by assigning one ~~chip data~~ known signal string chip per subcarrier, the number of subcarriers aligned in a frequency axis direction matching said spreading factor;

a demodulator that carries out despreading processing on the multiplexed signal received by said receiver using a spreading code assigned to the known signal, to thereby extract a received version of the known signal comprising the chips subjected to spreading processing and transmitted simultaneously;

a phase error detector that detects a residual phase error using the known signal and the received version of the known signal; and

a phase compensator that carries out phase compensation on a received version of each transmission signal using the residual phase error.

19. (Currently Amended) A base station apparatus equipped with an OFDM-CDMA transmission apparatus and an OFDM-CDMA

reception apparatus, said OFDM-CDMA transmission apparatus comprising:

a spreader that carries out spreading processing on at least one known signal at a predetermined spreading factor;

a frequency division multiplexer that breaks down the known signal after ~~being spread at~~ the spreading processing by said spreader into individual chips, the number of said chips matching said spreading factor, and subjects said chips to frequency division multiplexing by assigning one ~~chip data~~ known signal string chip per subcarrier, the number of subcarriers aligned in a frequency axis direction matching said spreading factor; and

a transmitter that transmits the individual chips, after ~~being subjected to~~ the frequency division multiplexing at by said frequency division multiplexer, simultaneously, wherein:

information from the known signal is multiplexed into every chip assigned to the subcarriers,

said OFDM-CDMA reception apparatus comprising:

a receiver that receives a multiplexed signal, in which at least one known signal is subjected to spreading processing at a predetermined spreading factor and broken down into individual chips, the number of said chips matching said spreading factor, and in which said chips are subjected to frequency division multiplexing by assigning one ~~chip data~~ known signal string chip

per subcarrier, the number of subcarriers aligned in a frequency axis direction matching said spreading factor;

a demodulator that carries out despreading processing on the multiplexed signal received by said receiver using a spreading code assigned to the known signal, to thereby extract a received version of the known signal comprising the chips subjected to spreading processing and transmitted simultaneously;

a phase error detector that detects a residual phase error using the known signal and the received version of the known signal; and

a phase compensator that carries out phase compensation on a received version of each transmission signal using the residual phase error.

20. (Currently Amended) A transmission method comprising:  
carrying out spreading processing on at least one known signal at a predetermined spreading factor;

breaking down the spreading processed known signal into individual chips, the number of said chips matching said spreading factor, and subjecting said chips to frequency division multiplexing by assigning one ~~chip data~~ known signal string chip per subcarrier, the number of subcarriers aligned in a frequency axis direction matching said spreading factor; and

transmitting the individual chips, after being subjected to the frequency division multiplexing, simultaneously, wherein:

information from the known signal is multiplexed into every chip assigned to the subcarriers.

21. (Currently Amended) A reception method comprising:  
receiving a multiplexed signal, in which at least one known signal is subjected to spreading processing at a predetermined spreading factor and broken down into individual chips, the number of said chips matching said spreading factor, and in which said chips are subjected to frequency division multiplexing by assigning one ~~chip-data~~ known signal ~~string~~ chip per subcarrier, the number of subcarriers aligned in a frequency axis direction matching said spreading factor;

carrying out despreading processing on the multiplexed signal received by said receiver using a spreading code assigned to the known signal, to thereby extract a received version of the known signal comprising the chips subjected to spreading processing and transmitted simultaneously;

detecting a residual phase error using the known signal and the received version of the known signal; and

carrying out phase compensation on a received version of each transmission signal using the residual phase error.